



Ontario  
College of  
Teachers

Ordre des  
enseignantes et  
des enseignants  
de l'Ontario

# **Additional Basic Qualification Course Guideline Senior Division Science – Chemistry**

## **Schedule A Regulation 184/97 Teachers' Qualifications**

**October 2009**

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## **Additional Basic Qualification Course Guideline Senior Division, Science – Chemistry**

### **1. Introduction**

Successful completion of the course developed from this guideline enables teachers to receive the Additional Basic Qualification: Senior Division, Science – Chemistry.

Candidates come to the Additional Basic Qualification course: Senior Division, Science – Chemistry with an interest or background in this subject matter.

Critical to the implementation of this course is the creation of positive learning experiences that reflect care, professional knowledge, ethical practice, leadership and ongoing learning.

The underlying purpose of the Additional Basic Qualification course is to extend the skills and knowledge for teaching in the senior division and of a subject-specific senior division program. At least one half of the course concentrates on subject specific content.

The Ontario College of Teachers recognizes that candidates working in the publicly funded school system or independent/private institutions will have a need to explore in an integrated delivery model, topics and issues of particular relevance to the context in which they work or may work.

### **2. Regulatory Context**

The College is the self-regulating body for the teaching profession in Ontario. The College's responsibility related to courses leading to Additional Qualifications includes the following:

- to establish and enforce professional standards and ethical standards applicable to members of the College
- to provide for the ongoing education of members of the College
- to accredit additional qualification courses or programs and more specifically,

*The program content and expected achievement of persons enrolled in the program match the skills and knowledge reflected in the College's "Standards of Practice for the Teaching Profession" and the "Ethical Standards for the Teaching Profession" and in the program guidelines issued by the College. (Regulation 347/02, Accreditation of Teacher Education Programs, Part IV Subsection 24).*

Additional Qualifications for teachers are identified in Regulation 184/97, Teachers' Qualifications. This regulation includes courses/programs that lead to Additional Qualifications, Additional Basic Qualifications, the Principal's Qualifications and the Supervisory Officer's Qualifications. A session of a course leading to an additional qualification shall consist of a minimum of 125 hours of work that is approved by the Registrar. Accredited Additional Qualification courses reflect the *Ethical Standards for the Teaching Profession*, the *Standards of Practice for the Teaching Profession* and the *Professional Learning Framework for the Teaching Profession*.

Successful completion of the course leading to the Additional Basic Qualification: Senior Division, Science – Chemistry listed in Schedule A of Regulation 184/97, Teachers' Qualifications is recorded on the Certificate of Qualification issued to the members of the College.

In this document, all references to candidates are to teachers enrolled in the Additional Qualification course. References to students indicate those in school programs.

### **3. The Ethical Standards and the Standards of Practice for the Teaching Profession**

A commitment to a clear vision of what it means to be a teacher is at the core of teacher professionalism. The *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* (Appendix 1) provide the focus for ongoing professional learning and are the foundation for the development of the Additional Basic Qualification course: Senior Division, Science – Chemistry . In addition, the *Professional Learning Framework for the Teaching Profession* is underpinned by the standards, articulates the principles on which effective teacher learning is based and acknowledges a range of options that promote continuous professional learning.

## Standards Resources

The College has developed resources to support the effective integration of the standards within Additional Qualification courses and programs. These resources explore the integration of the standards through a variety of educative and inquiry-based processes. A list of these resources can be found in Appendix 2 and are available through the College web site ([www.oct.ca](http://www.oct.ca)). This guideline has been designed to reflect the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession*.

## 4. Course Components

The design, course content and implementation of the Additional Basic Qualification course guideline: Senior Division, Science – Chemistry support effective teacher education practices. The following expectations and course components of this guideline support and inform effective professional knowledge and practice within the Additional Basic Qualification course: Senior Division, Science – Chemistry.

The *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* are embedded within the overall expectations for candidates.

This Additional Basic Qualification course has the following overall learning expectations for candidates:

- analyzing, interpreting and implementing Ministry of Education curriculum, policies and guidelines related to the senior division
- having and applying the theoretical understanding necessary to design, implement and assess programs and/or practices in the senior division
- modelling and adapting expectations, strategies and assessment practices in response to the individual needs of students
- facilitating the creation of learning environments conducive to the intellectual, social, emotional, physical, linguistic, cultural, spiritual and moral development of the student in the senior division
- collaborating with in-school personnel, parents/guardians and the community
- accessing and exploring a variety of resources, including technological resources, within and beyond the educational system to enhance professional knowledge in support of student learning in the senior division

- refining professional practice through ongoing inquiry, dialogue and reflection and active engagement related to Senior Division, Science – Chemistry
- supporting and modelling ethical practices
- understanding the need to respect and conserve resources in the environment
- understanding how to create and sustain professional learning communities
- integrating information and communication technology into teaching practice.

Successful candidates will demonstrate their understanding of and ability to apply the following:

**A. Ontario Curriculum and Policies**

The Additional Basic Qualification course: Senior Division, Science – Chemistry is aligned with current Ontario curriculum, relevant legislation, government policies and resources. These documents inform and reflect the development and implementation of the Additional Basic Qualification course: Senior Division, Science – Chemistry. These resources can be viewed at [www.edu.gov.on.ca](http://www.edu.gov.on.ca).

**B. *The Ethical Standards for the Teaching Profession and the Standards of Practice for the Teaching Profession* by:**

- understanding and embodying care, trust, respect and integrity
- demonstrating commitment to students and student learning
- integrating professional knowledge
- enriching and developing professional practice
- supporting leadership in learning communities
- engaging in ongoing professional learning.

**C. Theoretical Foundations for Working with the Adolescent Learner**

- understanding theories of adolescent development (social, emotional, physical, intellectual, linguistic, cultural, spiritual and moral), both historic and current, as they relate to the adolescent learner in the senior division

- understanding learning theories and the particular learning needs of the adolescent in the senior division
- understanding the role of Science in cross-curricular planning
- understanding scientific literacy and technological capabilities
- understanding the teaching of the basic concepts taught in the senior division, as a foundation for further studies in the discipline of Science – Chemistry.

#### **D. Program Development, Planning, Implementation and Assessment and Evaluation**

- understanding the theoretical foundations of Science – Chemistry in the senior division
- understanding learning theory specific to Science – Chemistry in the senior division
- demonstrating knowledge of Ministry of Education curriculum policy and resource documents (including the Trillium List) and school policies for the senior division
- knowing how to modify and accommodate the needs of students with exceptionalities
- identifying, accessing, assessing and integrating pedagogical, community, print, technological and collegial resources that are relevant to Science – Chemistry and support the Ontario curriculum in the senior division
- employing a variety of instructional strategies appropriate for the adolescent's learning style, for both individual and group learning experiences in the senior division
- understanding, devising and employing a variety of assessment and evaluation instruments appropriate to the developmental stages of students and in the delivery of the curriculum in the senior division
- recognizing and understanding curricular implications of educational destinations – work, college and university
- presenting a variety of perspectives when discussing Science – Chemistry
- considering how Science – Chemistry can impact on the lives and learning of adolescent learners
- connecting Science – Chemistry to students' everyday experiences

- having awareness of information technology appropriate for students in Science – Chemistry.

#### **E. The Learning Environment**

- understanding the impact of a positive classroom community on student behaviour and learning in Science – Chemistry
- developing and fostering a positive classroom community with a focus on the social cohesiveness and development of the group
- implementing effective classroom management strategies appropriate for the adolescent learner in the senior division
- planning and organizing an effective and safe program for the adolescent classroom in Science – Chemistry
- identifying factors in a diverse and changing society that impact on the adolescent learner in Science (for example, media, technology, socioeconomics, family patterns, language, culture, gender)
- understanding the skills, strategies and habits of mind required for scientific inquiry and technological design as they apply to the adolescent learner
- understanding how to help the adolescent learner to relate scientific and technological knowledge to each other and to the world outside the school.

#### **F. School, Parent/Guardian and Community**

- understanding the importance of communicating with, involving and supporting parents/guardians
- understanding and employing a variety of effective communication strategies for collaborating with parents/guardians and others
- explaining expectations, programs, observations and assessments to parents/guardians
- encouraging parents'/guardians' support of Science – Chemistry.

#### **G. Legislation and Policy**

- recognizing teachers' legal obligations and responsibilities according to current provincial legislation

- identifying provincial legislation, local policies and procedures and community norms that impact on Science – Chemistry in the senior division for the education of the adolescent learner
- recognizing legal issues related to adolescents
- knowing and understanding general policies and procedures that will ensure health and personal safety in the Science – Chemistry class.

## **5. Instructional Practice in the Additional Basic Qualification Course: Senior Division, Science – Chemistry**

In the implementation of this Additional Basic Qualification course, instructors use strategies that are relevant, meaningful and practical in providing candidates with learning experiences about program, instruction, pedagogy and assessment and evaluation. These include but are not limited to, small group interaction, action research, presentations, independent inquiry, problem solving, collaborative learning and direct instruction. Instructors model the standards, honour the principles of adult learning, recognize candidates' experience and prior learning and respond to individual needs. Important to the course are opportunities for candidates to create support networks and receive feedback from colleagues and instructors and share the products of their learning with others. Opportunities for professional reading, reflection, dialogue and expression are also integral parts of the course.

Where possible, experiential learning and authentic school-based experiences are included in the course, for example, classroom observations, practicum experiences and action research projects. Instructors model effective instructional strategies and formative and summative assessment that can be replicated or adapted in the candidate's classroom.

## **6. Assessment and Evaluation of Candidates**

At the beginning of the course, candidates are provided with the specific learning expectations and forms of assessment and evaluation that will be used throughout the course. Opportunities will be provided by instructors for regular feedback regarding candidates' progress throughout the course.

A balanced approach to candidate assessment and evaluation is used. It includes the combination of self and peer assessment and instructor evaluation, and models effective practices. A variety of assessment approaches will be used that



enable candidates to convey their learning. The course provides opportunities for both formative and summative assessment and evaluation.

Central to teachers enrolled in Additional Basic Qualification courses is the opportunity to be engaged in relevant and meaningful work. Assignments, artefacts and projects enable candidates to make connections between theory and practice. At the same time, assignments must allow candidates flexibility, choice and individual inquiry opportunities.

Part of the evaluation process may include a major independent project or action research component over the duration of the course. This project is an opportunity for candidates to illustrate a high level of professional knowledge, communication skills, pedagogy, ethical practices and instructional leadership. Similarly, if a portfolio assignment is used, it will also include reflections and analysis of a candidate's learning over time.

A final culminating experience in the course is recommended. This experience may take the form of a written assessment, a research paper, a performance, an inquiry project or a product that is genuinely new, meaningful and practical.

The following list of assessment strategies is not exhaustive; it is intended to serve as a guide only.

- a) Performance assessment: designing a sample unit which includes a culminating activity and appropriate assessment and evaluation tools, incorporates a variety of technologies and resources relevant to the study of Senior Division, Science – Chemistry and is based on Ministry of Education expectations
- b) Written assignment: reflecting critically on issues arising from articles, publications, research and/or other resources related to the teaching or practice of Senior Division, Science – Chemistry
- c) Presentation: developing a digital story, presenting an issue related to the teaching and learning of Senior Division, Science – Chemistry
- d) Portfolio: creating a portfolio of practical resources, artefacts, photographs and recording critical reflections for each component related to Senior Division, Science – Chemistry
- e) Action research: engaging in action research within the context of a senior division classroom by reflecting and acting upon a specific inquiry into teaching practice related to Science – Chemistry

- f) Independent project: addressing any aspect of the course that is approved by the instructor
- g) Instructional resource: developing a meaningful resource that will support instruction and pedagogy related to the teaching and learning of Senior Division, Science – Chemistry
- h) Reflective writing: reflecting on professional practice through journal-writing, or writing a case or vignette that will support instruction and pedagogy related to the teaching and learning of Senior Division, Science – Chemistry.

## Appendix 1

### The Ethical Standards for the Teaching Profession

The *Ethical Standards for the Teaching Profession* represent a vision of professional practice. At the heart of a strong and effective teaching profession is a commitment to students and their learning. Members of the Ontario College of Teachers, in their position of trust, demonstrate responsibility in their relationships with students, parents, guardians, colleagues, educational partners, other professionals, the environment and the public.

#### The Purposes of the Ethical Standards for the Teaching Profession are:

- to inspire members to reflect and uphold the honour and dignity of the teaching profession
- to identify the ethical responsibilities and commitments in the teaching profession
- to guide ethical decisions and actions in the teaching profession
- to promote public trust and confidence in the teaching profession.

#### The Ethical Standards for the Teaching Profession are:

##### Care

The ethical standard of *Care* includes compassion, acceptance, interest and insight for developing students' potential. Members express their commitment to students' well-being and learning through positive influence, professional judgment and empathy in practice.

##### Respect

Intrinsic to the ethical standard of *Respect* are trust and fair-mindedness. Members honour human dignity, emotional wellness and cognitive development. In their professional practice, they model respect for spiritual and cultural values, social justice, confidentiality, freedom, democracy and the environment.

##### Trust

The ethical standard of *Trust* embodies fairness, openness and honesty. Members' professional relationships with students, colleagues, parents, guardians and the public are based on trust.

##### Integrity

Honesty, reliability and moral action are embodied in the ethical standard of *Integrity*. Continual reflection assists members in exercising integrity in their professional commitments and responsibilities.

## The Standards of Practice for the Teaching Profession

The *Standards of Practice for the Teaching Profession* provide a framework of principles that describes the knowledge, skills, and values inherent in Ontario's teaching profession. These standards articulate the goals and aspirations of the profession. These standards convey a collective vision of professionalism that guides the daily practices of members of the Ontario College of Teachers.

### The Purposes of the Standards of Practice for the Teaching Profession are:

- to inspire a shared vision for the teaching profession
- to identify the values, knowledge and skills that are distinctive to the teaching profession
- to guide the professional judgment and actions of the teaching profession
- to promote a common language that fosters an understanding of what it means to be a member of the teaching profession.

### The Standards of Practice for the Teaching Profession are:

#### **Commitment to Students and Student Learning**

Members are dedicated in their care and commitment to students. They treat students equitably and with respect and are sensitive to factors that influence individual student learning. Members facilitate the development of students as contributing citizens of Canadian society.

#### **Professional Knowledge**

Members strive to be current in their professional knowledge and recognize its relationship to practice. They understand and reflect on student development, learning theory, pedagogy, curriculum, ethics, educational research and related policies and legislation to inform professional judgment in practice.

#### **Professional Practice**

Members apply professional knowledge and experience to promote student learning. They use appropriate pedagogy, assessment and evaluation,

resources and technology in planning for and responding to the needs of individual students and learning communities. Members refine their professional practice through ongoing inquiry, dialogue and reflection.

#### **Leadership in Learning Communities**

Members promote and participate in the creation of collaborative, safe and supportive learning communities. They recognize their shared responsibilities and their leadership roles in order to facilitate student success. Members maintain and uphold the principles of the ethical standards in these learning communities.

#### **Ongoing Professional Learning**

Members recognize that a commitment to ongoing professional learning is integral to effective practice and to student learning. Professional practice and self-directed learning are informed by experience, research, collaboration and knowledge.

## Appendix 2

### Standards Resources

Information pertaining to the following standards resources is available through the College web site at [www.oct.ca](http://www.oct.ca).

Allard, C.C., Goldblatt, P.F., Kemball, J.I., Kendrick, S.A., Millen, K.J., & Smith, D.M. (2007). Becoming a reflective community of practice. *Reflective Practice* (8)3, 299-314.

Goldblatt, P.F., & Smith, D. (2004). Illuminating and facilitating professional knowledge through casework. *European Journal of Teacher Education* (27)3, 334-354.

Goldblatt, P.F., & Smith, D. (2005). (Eds.). *Cases for teacher development: Preparing for the classroom*. Thousand Oaks, CA: Sage Publications.

Ontario College of Teachers. (2003). *Standards in practice: Fostering professional inquiry*. [Resource kit 1]. Toronto, ON: Author.

Ontario College of Teachers. (2006). *Foundations of professional practice*. Toronto, ON: Author.

Ontario College of Teachers. (2008). *Living the standards*. [Resource kit 2]. Toronto, ON: Author.

Smith, D., & Goldblatt, P.F. (Eds.). (2006). *Casebook guide for teacher education*. Toronto, ON: Ontario College of Teachers.